

What is Claimed:

1. An electrical power meter having electronic components, wherein the electrical power meter receives alternating current (AC) voltage from an electrical power line, the meter comprising:

a power supply for converting the AC voltage to a direct current (DC) voltage for powering the electronic components, wherein the AC voltage provides an electrical reference potential for the electronic components; and

a DC power source in parallel circuit configuration with the AC voltage, wherein the DC power source provides a DC bias voltage to the AC voltage.

2. The meter of claim 1, wherein the DC power source comprises a diode.

3. The meter of claim 2, wherein the diode has a forward bias current of approximately 0.5 millamps and a forward bias voltage of approximately 0.584 volts.

4. The meter of claim 2, wherein the AC voltage creates a relatively small voltage across the diode.

5. The meter of claim 2, wherein a dynamic AC impedance of the diode is approximately an order of magnitude less than a DC impedance of the diode.

6. The meter of claim 2, wherein the diode is an IN914 diode.

7. The meter of claim 2, wherein the DC power source comprises a first resistive element in series connection with the diode.

8. The meter of claim 1, wherein the DC power source provides a DC voltage having a value that biases the AC voltage-based reference potential to a value that permits operation of the electronic components.

9. The meter of claim 1, wherein the electronic components comprise a voltage sensing circuit for sensing the AC voltage.

10. The meter of claim 1, wherein the voltage sensing circuit comprises a resistive divider circuit.
11. The meter of claim 10, wherein the resistive divider circuit comprises a first, second, and third resistive element.
12. The meter of claim 11, wherein the first and second resistive element each have a value of approximately 1 megaohm.
13. The meter of claim 1, wherein the DC power source biases the AC voltage as a function of the AC voltage.
14. The meter of claim 1, wherein the DC power source comprises a capacitive element in parallel with a first resistive element.
15. The meter of claim 14, wherein the resistive element has a value of approximately 1168 ohms.
16. The meter of claim 14, wherein the capacitive element has a value of approximately 25 microfarads.
17. The meter of claim 14, wherein the capacitive element operates to reduce the dynamic AC impedance of the resistive element.
18. The meter of claim 8, wherein the AC voltage-based reference potential is greater than negative power supply rail.
19. The meter of claim 1, wherein the DC power source comprises at least one of the following: a battery and a solar cell.
20. A method of operating an electrical meter having electronic components, comprising:
 - receiving AC voltage from an electric power line, wherein the AC voltage provides an electrical reference potential for the electronic components;
 - converting the AC voltage to a DC voltage; and

adjusting the AC voltage provided to the electronic components, as a function of the AC voltage.

21. The method of claim 20, further comprising increasing the reference-based AC voltage provided to a voltage sensing circuit.
22. The method of claim 20, wherein the adjusting is accomplished by a DC power source.
23. The meter of claim 22, wherein the DC power source comprises a diode.
24. The meter of claim 22, further comprising creating a relatively small voltage across the DC power source as a function of the AC voltage.
25. The meter of claim 22, further comprising maintaining a dynamic AC impedance of the DC power source at approximately an order of magnitude less than a DC impedance of the DC power source.
26. The meter of claim 22, further comprising creating a DC voltage from the DC power source that biases the AC voltage-based reference potential to a value that permits operation of the electronic components.
27. The method of claim 20, further comprising sensing the AC voltage using a resistive divider circuit.
28. The method of claim 22, further comprising biasing the AC voltage with the DC power source.
29. The method of claim 22, wherein the DC power source comprises a capacitive element in parallel with a first resistive element, wherein the capacitive element reduces the dynamic AC impedance of the resistive element.